

FPN Figure B.310.4 {One Circuit, 1-1/c in Each of Twelve Ducts, Four Conductors per Phase}

0-5000 Volt Cable, Ambient Earth Temperature = 20 Deg C, Earth Thermal resistivity = 60, 90 or 120,
 Concrete Thermal resistivity (RHO) = Earth RHO minus 5, PVC Duct RHO = 650, Duct Diameter 3",
 Cable Insulation RHO = 500, Cable Jacket RHO = 650, Load Factor = 50% or 100%, Conductor Temperature = 75C (167F).

Size (AWG or kcmil)	Types RHW, THHW, THW, THWN, XHHW, USE OR MV-90									Size (AWG or kcmil)
	COPPER									
	Total per Phase Ampere Rating									
	NEC			AmpCalc			% Deviation			
	RHO EARTH 60 LF 50	RHO EARTH 90 LF 100	RHO EARTH 120 LF 100	RHO EARTH 60 LF 50	RHO EARTH 90 LF 100	RHO EARTH 120 LF 100	RHO EARTH 60, LF 50	RHO EARTH 90, LF 100	RHO EARTH 120, LF 100	
750	*2820 (705A/Cable)	1860 (465A/Cable)	1680 (420A/Cable)	2636.0 (260.5A/Cable)	1844.4 (461.1A/Cable)	1662.4 (415.6A/Cable)	-6.5%	-0.8%	-1.0%	750
1000	3300 (825A/Cable)	2140 (535A/Cable)	1920 (480A/Cable)	3101.6 (260.5A/Cable)	2134.0 (533.5A/Cable)	1917.2 (479.3A/Cable)	-6.0%	-0.3%	-0.1%	1000
1250	3700 (925A/Cable)	2380 (595A/Cable)	2120 (530A/Cable)	3499.2 (260.5A/Cable)	2374.8 (593.7A/Cable)	2128.4 (532.1A/Cable)	-5.4%	-0.2%	0.4%	1250
1500	4060 (1015A/Cable)	2580 (645A/Cable)	2300 (575A/Cable)	3831.2 (316.3A/Cable)	2574.8 (643.7A/Cable)	2303.6 (575.9A/Cable)	-5.6%	-0.2%	0.2%	1500
1750	4360 (1090A/Cable)	2740 (685A/Cable)	2460 (615A/Cable)	4118.8 (383.4A/Cable)	2744.8 (686.2A/Cable)	2452.4 (613.1A/Cable)	-5.5%	0.2%	-0.3%	1750
Average Deviation =							-5.8%	-0.3%	-0.2%	

*2520 in NEC is clearly a misprint.

***See comments on following page on results for Earth RHO = 60 and LF = 50.**

AmpCalc References:

AmpCalc Library = IEERUB_1, AmpCalc Volume = IEERUB8 except 80 mil jacket added with RHO = 650,
 5 kV Shielded w/ one end grounded, Duct library = NEC_PVC, 3" duct.

NEC ampacities obtained from "NFPA 70, National Electric Code, 2002 Edition", © 2002, National Fire Protection Association, Inc.
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AmpCalc calculates ampacities from 5.4% to 6.5% lower than listed in the NEC table for Earth RHO=60 and Load Factor (LF) = 50%. Note the following ampacity ratios from the NEC, AmpCalc and the S-135 Standard show close agreement between AmpCalc and S-135, with the higher factors for the NEC indicating that the RHO=60 and LF=100% NEC ampacity values are high.

**Ratio of Ampacities at RHO=60 & LF=50% TO
Ampacities at RHO-90 & LF=100%**

Size	NEC	AmpCalc	S-135
750	1.516	1.429	1.434
1000	1.542	1.453	1.456
1250	1.555	1.473	1.471
1500	1.574	1.488	1.484
1750	1.591	1.501	1.496